

Name _____

Keystone Review Quizzes

Topic #	# Wrong
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9	
Total # Wrong	
Final Score	/30

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Topic 1: Biochemistry and the Molecules of Life

(# wrong = ____)

1. Water is a _____ molecule, which lends it to many important properties.
 - a. polar
 - b. nonpolar
 - c. ionic
 - d. metallic
2. Compounds like H_2O and CO_2 would be _____, while compounds like $\text{C}_6\text{H}_{12}\text{O}_6$ and $\text{C}_2\text{H}_5\text{O}_2\text{N}$ would be _____.
 - a. nonpolar; polar
 - b. polar; nonpolar
 - c. organic; inorganic
 - d. inorganic; organic
3. Due to maximizing the number of _____ bonds, solid water is actually less dense than liquid water.
 - a. metallic
 - b. hydrogen
 - c. ionic
 - d. covalent
4. A macromolecule contains the elements C, H, and O. It is a polymer of hexagonal rings, and the elements come out to a ratio about 1:2:1. Which macromolecule would this be? (Hint: It is an important source of energy)
 - a. Carbohydrate
 - b. Lipid
 - c. Nucleic acid
 - d. Protein
5. A monomer is to a polymer as ... ?
 - a. a polysaccharide is to a monosaccharide
 - b. a nucleotide is to nucleic acid
 - c. a lipid is to a carbohydrate
 - d. a protein is to an amino acid

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6. Which of the following is not a part of an amino acid?
 - a. amine group
 - b. carboxyl group
 - c. phosphate group
 - d. radical (R) group

7. The “lock and key” model refers to
 - a. dehydration synthesis
 - b. monomers and polymers
 - c. an enzyme and a substrate

8. Hydrolysis involves the _____ of water to _____ a polymer.
 - a. removal; break up
 - b. removal; build
 - c. addition; break up
 - d. addition; build

9. Glucose, a carbohydrate monomer, would be referred to as a/an
 - a. monolipid
 - b. monosaccharide
 - c. polysaccharide
 - d. amino acid

10. Biological protein catalysis speed up reactions by
 - a. lowering activation energy
 - b. increasing the reaction temperature
 - c. decreasing the amount of reactant collisions
 - d. all of the above

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Topic 2: Cells

(# *wrong* = ____)

1. Which type of cell has a nucleus?
 - a. prokaryote
 - b. eukaryote
 - c. both
 - d. neither

2. The structure found in ALL cells that encloses a cell from the outside is the
 - a. cytosol
 - b. cell wall
 - c. endoplasmic reticulum
 - d. cell membrane

3. Plants have this structure that allows them to carry out photosynthesis
 - a. mitochondria
 - b. golgi bodies
 - c. chloroplasts
 - d. chromosomes

4. Due to having less items in the cell, _____ are usually smaller.
 - a. prokaryotes
 - b. eukaryotes
 - c. both
 - d. neither

5. Where are ribosomes made?
 - a. nucleus
 - b. nucleolus
 - c. cytosol
 - d. rough endoplasmic reticulum

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6. Golgi bodies are connected to which structure?
 - a. endoplasmic reticulum
 - b. cell wall
 - c. mitochondria
 - d. nucleus
7. An organelle must be
 - a. surrounded by a membrane
 - b. able to leave a cell
 - c. made up of carbohydrates
 - d. contain DNA
8. The function of the nucleus is to
 - a. make the cell bigger
 - b. make proteins
 - c. surround and protect the cell
 - d. surround and protect DNA
9. Which of the following correctly matches a cell part with its function?
 - a. mitochondria...photosynthesis
 - b. nucleus...make ATP
 - c. vesicle/vacuole...storage
 - d. lysosome...movement
10. Some cells have rigid ____ outside of the membrane for even more support.
 - a. cell wall
 - b. cytoskeleton
 - c. filament
 - d. golgi body

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Topic 3: Cellular Transport

(# *wrong* = ____)

1. Molecules naturally move from an area of ____ concentration to an area of ____ concentration.
 - a. high...high
 - b. low...low
 - c. high...low
 - d. low...high
2. This cell barrier refers to the “fluid mosaic model” and is highly selective about what passes through.
 - a. gap junction
 - b. cell wall
 - c. nuclear membrane
 - d. cell membrane
3. Which of these is the most likely to diffuse through a cell membrane?
 - a. small, nonpolar molecule
 - b. ion
 - c. large molecule
 - d. polar molecule
4. Which form of cellular transport moves AGAINST the concentration gradient?
 - a. active transport
 - b. osmosis
 - c. diffusion
 - d. facilitated diffusion
5. Water will exit the cell when placed in a/an _____ environment.
 - a. polar
 - b. hypotonic
 - c. hypertonic
 - d. isotonic

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6. Which of the following organisms does NOT have a cell wall?
 - a. E. coli
 - b. roses
 - c. portabella mushroom
 - d. giraffe
7. Facilitated diffusion uses which macromolecule to help move items across?
 - a. nucleic acid
 - b. protein
 - c. lipid
 - d. carbohydrate
8. The sodium potassium pump is an example of
 - a. facilitated diffusion
 - b. active transport
 - c. osmosis
 - d. diffusion
9. The diffusion of water across a membrane is known as
 - a. facilitated diffusion
 - b. active transport
 - c. osmosis
 - d. diffusion
10. Plants typically prefer to be in a/an _____ environment.
 - a. hypotonic
 - b. hypertonic
 - c. ionic
 - d. isotonic

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Topic 4: Cellular Division

(# *wrong* = ____)

1. Which of these is not part of interphase?
 - a. G2
 - b. G1
 - c. M
 - d. S

2. The process of mitosis results in
 - a. four 1N cells
 - b. four 2N cells
 - c. two 1N cells
 - d. two 2N cells

3. The process of meiosis results in
 - a. four 1N cells
 - b. four 2N cells
 - c. two 1N cells
 - d. two 2N cells

4. Crossing over occurs during
 - a. prophase I
 - b. metaphase II
 - c. anaphase I
 - d. telophase II

5. The replication of genetic material occurs during
 - a. G0
 - b. metaphase
 - c. S phase
 - d. anaphase

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6. In mitosis, sister chromatids move toward opposite ends of the cell during which phase?
 - a. telophase
 - b. prophase
 - c. metaphase
 - d. anaphase
7. What is the difference between plant and animal mitosis?
 - a. plants use centrioles; animals use a cell wall to split the cell contents
 - b. plant cells have a cell plate; animals have a cleavage furrow
 - c. animals reduce their chromosome number; plants don't
 - d. plants do not go through telophase
8. The nuclear membrane/envelope breaks down during
 - a. telophase
 - b. prophase
 - c. anaphase
 - d. metaphase
9. Meiosis results in the production of
 - a. 2 haploid cells
 - b. 2 diploid cells
 - c. 4 haploid cells
 - d. 4 diploid cells
10. The failure of chromosomes to separate during meiosis is known as
 - a. nondisjunction
 - b. independent assortment
 - c. synapsis
 - d. none of the above

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Topic 5: Cellular Energy

(# wrong = ____)

1. The formula $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light/enzymes} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ refers to
 - a. photosynthesis
 - b. fermentation
 - c. respiration
 - d. oxidation

2. For eukaryotes, photosynthesis takes place in the
 - a. mitochondria
 - b. chloroplast
 - c. ribosomes
 - d. cytoplasm

3. Light-dependent reactions and light-independent reactions refer to
 - a. fermentation
 - b. glycolysis
 - c. respiration
 - d. photosynthesis

4. Glycolysis starts with _____ and breaks it in half to release _____ net ATP.
 - a. glucose; 2
 - b. glucose; 4
 - c. CO_2 ; 2
 - d. CO_2 ; 4

5. Photolysis uses light energy to split a molecule of
 - a. glucose
 - b. water
 - c. CO_2
 - d. O_2

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6. Fermentation takes place
 - a. in the absence of carbon dioxide
 - b. in the presence of carbon dioxide
 - c. in the absence of oxygen
 - d. in the presence of oxygen
7. Which two are practically opposite reactions?
 - a. dark reactions and light reactions
 - b. fermentation and Krebs's cycle
 - c. photosynthesis and glycolysis
 - d. photosynthesis and respiration
8. The most ATP is generated during
 - a. Krebs's cycle and electron transport chain
 - b. light-dependent and light-independent reactions
 - c. glycolysis and fermentation
 - d. light-dependent reactions and fermentation
9. Which of the following is a type of fermentation?
 - a. lactic acid
 - b. alcoholic
 - c. both A and B
 - d. neither A nor B
10. A mushroom digests a dead log. How would you describe the mushroom?
 - a. metatroph
 - b. autotroph
 - c. heterotroph
 - d. isotroph

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Topic 6: DNA and its Processes

(# *wrong* = ____)

1. Which of the following is NOT part of a nucleotide?
 - a. 5-carbon sugar
 - b. phospholipid
 - c. nitrogenous base
 - d. phosphate group

2. Making an mRNA strand based on DNA is called
 - a. transcription
 - b. translation
 - c. transformation
 - d. replication

3. What type of bonds connect the two strands of DNA?
 - a. metallic
 - b. hydrogen
 - c. ionic
 - d. covalent

4. A group of 3 nucleotides read by a ribosome is referred to as a/an
 - a. transfer RNA molecule
 - b. codon
 - c. enzyme
 - d. isomer

5. Translation does which?
 - a. DNA → RNA
 - b. DNA → RNA
 - c. RNA → protein
 - d. RNA → RNA

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6. AATTGC → ACTTGC would be what type of mutation?

- a. frameshift
- b. deletion
- c. insertion
- d. substitution

7. AATTGC → ATTGC would be what type of mutation?

- a. deletion
- b. translocation
- c. substitution
- d. insertion

8. Which of the following describes replication?

- a. RNA → DNA
- b. RNA → protein
- c. DNA → RNA
- d. DNA → DNA

9. Which of the following is NOT a type of RNA?

- a. mRNA
- b. tRNA
- c. dRNA
- d. rRNA

10. What are the rules for base-pairs?

- a. A with G
- b. A with T
- c. A with C
- d. G with U

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Topic 7: Genetics

(# wrong = ____)

1. The allele that can be masked is called
 - a. homozygous
 - b. codominant
 - c. recessive
 - d. heterozygous

2. The genotype AA or bb would be referred to as ____, while Aa or Bb would be ____.
 - a. recessive...dominant
 - b. dominant...recessive
 - c. heterozygous...homozygous
 - d. homozygous...heterozygous

3. A man with straight hair and a woman with curly hair have a child. The child has wavy hair. This would be an example of
 - a. incomplete dominance
 - b. complete dominance
 - c. codominance
 - d. epistasis

4. Directly manipulating the genome of an organisms is referred to as
 - a. genetic engineering
 - b. playing God
 - c. natural selection
 - d. artificial selection

5. A trait that is found on the X chromosome is referred to as
 - a. nondisjunction
 - b. a homozygous disorder
 - c. sex-linked
 - d. autosomal

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6. A man who is colorblind mates with a woman that is a carrier for colorblindness. What is the probability that they will have a colorblind child?
 - a. 25%
 - b. 50%
 - c. 75%
 - d. 33%

7. The physical appearance of an organism that results from its genetic makeup is known as its
 - a. genotype
 - b. phenotype
 - c. mitochondrial effect
 - d. allele

8. Which of the following results in genetic variation?
 - a. mitosis
 - b. independent assortment
 - c. metaphase
 - d. symbiosis

9. When setting up a Punnett square, what information goes on the outside?
 - a. the offspring alleles
 - b. the parent alleles
 - c. the diploid chromosomes
 - d. somatic cells

10. Different versions of the same trait are referred to as
 - a. alleles
 - b. flavors
 - c. somatic cells
 - d. gametes

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Topic 8: Evolution

(# *wrong* = ____)

1. Which would an animal breeder use to produce cows that give more milk?
 - a. genetic isolation
 - b. artificial selection
 - c. overproduction
 - d. acquired characteristics

2. A slow and steady evolutionary change in species is known as
 - a. extinction
 - b. punctuated equilibrium
 - c. gradualism
 - d. extantism

3. The arm bones of a cat, a bat, and a human would be an example of
 - a. coevolutionary structures
 - b. vestigial structures
 - c. analogous structures
 - d. homologous structures

4. Remains of organisms that are preserved and can show evolutionary relationships are known as
 - a. disruptive selection
 - b. fossils
 - c. missing links
 - d. stabilization

5. Where does variation in organisms come from?
 - a. the environment
 - b. mutations
 - c. future generations
 - d. metaphase II

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6. A variation that allows an organism to better survive in its environment is known as a/an
 - a. variation
 - b. reductive trait
 - c. adaptation
 - d. gradualism

7. The theory of evolution is driven by the process of
 - a. natural selection
 - b. artificial selection
 - c. stabilizing selection
 - d. disruptive selection

8. Fish produce thousands of eggs every year. What part of Darwin's theory would this be?
 - a. overproduction
 - b. competition
 - c. survival
 - d. variation

9. An earthquake divides two pieces of land. What type of isolation would this be?
 - a. genetic isolation
 - b. behavioral isolation
 - c. temporal isolation
 - d. geographical isolation

10. Mating with relatives is known as
 - a. inbreeding
 - b. outcrossing
 - c. random mating
 - d. polygenic effect

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Topic 9: Ecology

(# wrong = ____)

1. Where would a producer be found on a food chain?
 - a. the top
 - b. the bottom
 - c. the middle
 - d. they would not be found on one

2. With an energy pyramid, how does the energy change as you go up the pyramid?
 - a. it decreases by 90% each level
 - b. it decreases by different amounts each level
 - c. it increases by 90% each level
 - d. it increases by different amount each level

3. Which of the following would NOT be an abiotic factor?
 - a. amount of sunlight
 - b. soil bacteria
 - c. wind
 - d. temperature

4. A fox chases, attacks, and kills a rabbit. What type of relationship would this be?
 - a. competition
 - b. predation
 - c. symbiosis
 - d. parasitism

5. Two foxes try to kill the same rabbit. What type of relationship would this be?
 - a. competition
 - b. predation
 - c. symbiosis
 - d. parasitism

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6. The difference between environmental science and ecology is that environmental science includes _____, while ecology does not.
 - a. bacteria
 - b. plants
 - c. animals
 - d. people
7. All of the different species of microscopic organisms living in and on your body would be called a/an
 - a. community
 - b. ecosystem
 - c. species
 - d. population
8. Anything that would decrease the growth, existence, or distribution of one organism or a whole population would be called a/an
 - a. eutrophic event
 - b. pollutant
 - c. stunting nutrient
 - d. limiting factor
9. A species that belongs to an ecosystem is called _____, while a species that does not belong to an ecosystem is called _____.
 - a. threatened; endangered
 - b. endangered; threatened
 - c. endemic; non-native
 - d. non-native; endemic
10. A forest burns down after a lightning storm. The slow, gradual process of replacing the forest with different types of plants would be called
 - a. evolution
 - b. succession
 - c. development
 - d. a tragedy